



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210 M7 (Intel Xeon Gold 5512U, 2.10GHz)

SPECrate®2017\_fp\_base = 332

SPECrate®2017\_fp\_peak = 342

CPU2017 License: 9019

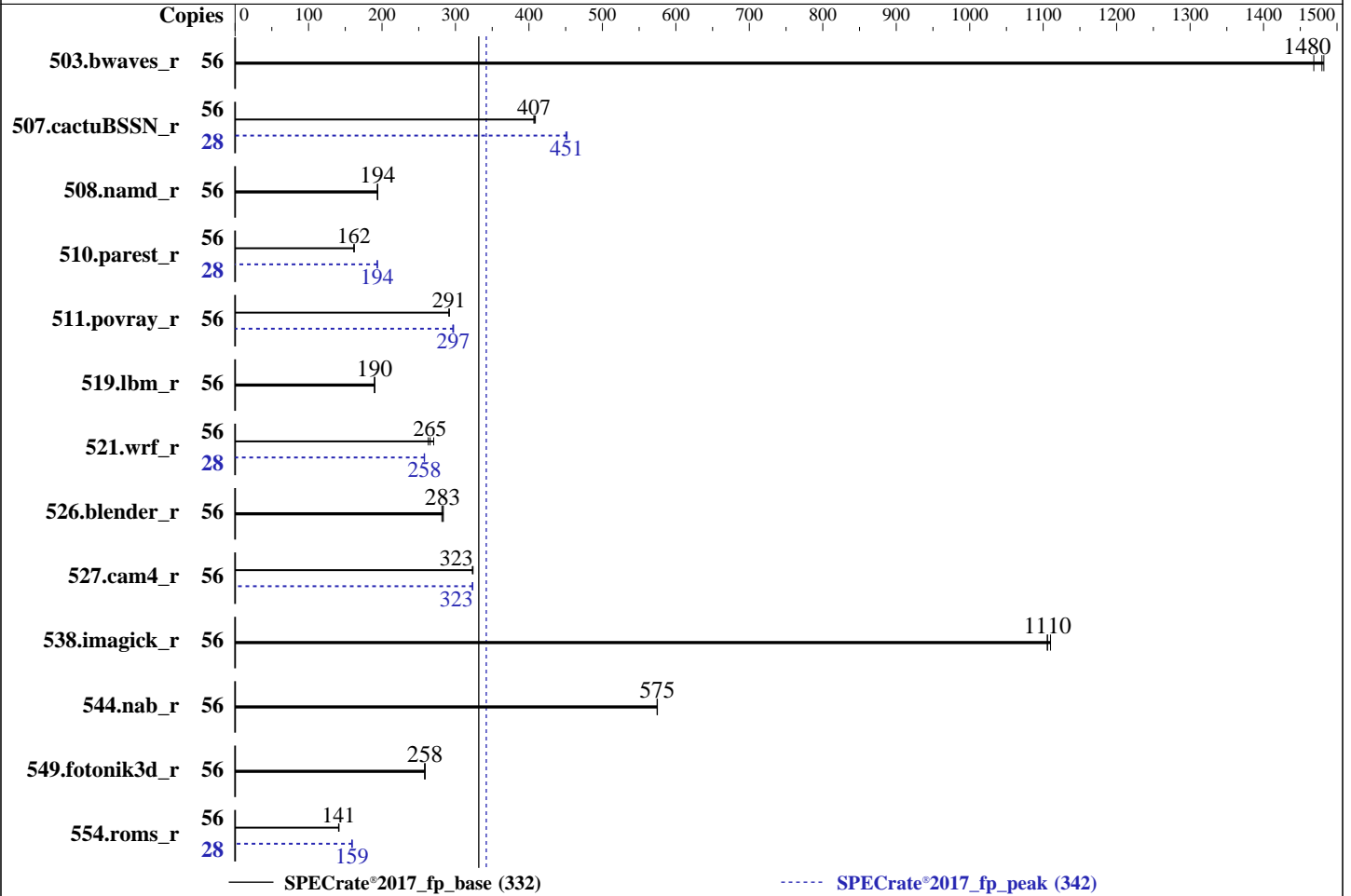
Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Apr-2024

Hardware Availability: Feb-2024

Software Availability: Dec-2023



### Hardware

CPU Name: Intel Xeon Gold 5512U  
 Max MHz: 3700  
 Nominal: 2100  
 Enabled: 28 cores, 1 chip, 2 threads/core  
 Orderable: 1 Chips  
 Cache L1: 32 KB I + 48 KB D on chip per core  
 L2: 2 MB I+D on chip per core  
 L3: 52.5 MB I+D on chip per chip  
 Other: None  
 Memory: 512 GB (8 x 64 GB 2Rx4 PC5-4800B-R)  
 Storage: 1 x 960 GB M.2 SSD SATA  
 Other: CPU Cooling: Air

### Software

OS: SUSE Linux Enterprise Server 15 SP4  
 5.14.21-150400.22-default  
 Compiler: C/C++: Version 2024.0.2 of Intel oneAPI DPC++/C++  
 Compiler for Linux;  
 Fortran: Version 2024.0.2 of Intel Fortran  
 Compiler for Linux;  
 Parallel: No  
 Firmware: Version 4.3.3a released Jan-2024  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: jemalloc memory allocator V5.0.1  
 Power Management: BIOS set to prefer performance at the cost  
 of additional power usage



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210 M7 (Intel Xeon Gold 5512U, 2.10GHz)

SPECrate®2017\_fp\_base = 332

SPECrate®2017\_fp\_peak = 342

**CPU2017 License:** 9019  
**Test Sponsor:** Cisco Systems  
**Tested by:** Cisco Systems

**Test Date:** Apr-2024  
**Hardware Availability:** Feb-2024  
**Software Availability:** Dec-2023

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	56	379	1480	382	1470	<b>380</b>	<b>1480</b>	56	379	1480	382	1470	<b>380</b>	<b>1480</b>
507.cactuBSSN_r	56	174	407	<b>174</b>	<b>407</b>	173	409	28	78.7	450	<b>78.5</b>	<b>451</b>	78.4	452
508.namd_r	56	275	194	274	194	<b>274</b>	<b>194</b>	56	275	194	274	194	<b>274</b>	<b>194</b>
510.parest_r	56	906	162	<b>905</b>	<b>162</b>	903	162	28	378	194	379	193	<b>378</b>	<b>194</b>
511.povray_r	56	<b>449</b>	<b>291</b>	448	292	449	291	56	440	297	<b>440</b>	<b>297</b>	441	296
519.lbm_r	56	<b>311</b>	<b>190</b>	311	190	311	190	56	<b>311</b>	<b>190</b>	311	190	311	190
521.wrf_r	56	477	263	464	270	<b>473</b>	<b>265</b>	28	<b>243</b>	<b>258</b>	244	257	243	258
526.blender_r	56	303	281	<b>302</b>	<b>283</b>	301	284	56	303	281	<b>302</b>	<b>283</b>	301	284
527.cam4_r	56	<b>303</b>	<b>323</b>	302	324	303	323	56	<b>303</b>	<b>323</b>	303	323	303	324
538.imagick_r	56	<b>126</b>	<b>1110</b>	126	1110	125	1110	56	<b>126</b>	<b>1110</b>	126	1110	125	1110
544.nab_r	56	164	575	164	574	<b>164</b>	<b>575</b>	56	164	575	164	574	<b>164</b>	<b>575</b>
549.fotonik3d_r	56	844	259	<b>845</b>	<b>258</b>	846	258	56	844	259	<b>845</b>	<b>258</b>	846	258
554.roms_r	56	629	142	<b>631</b>	<b>141</b>	632	141	28	<b>279</b>	<b>159</b>	279	160	280	159

SPECrate®2017\_fp\_base = **332**

SPECrate®2017\_fp\_peak = **342**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:  
LD\_LIBRARY\_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"  
MALLOC\_CONF = "retain:true"

## General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM memory using Red Hat Enterprise Linux 8.4  
Transparent Huge Pages enabled by default  
Prior to runcpu invocation  
Filesystem page cache synced and cleared with:  
sync; echo 3> /proc/sys/vm/drop\_caches  
runcpu command invoked through numactl i.e.:  
numactl --interleave=all runcpu <etc>  
NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210 M7 (Intel Xeon Gold 5512U, 2.10GHz)

SPECrate®2017\_fp\_base = 332

SPECrate®2017\_fp\_peak = 342

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Apr-2024

**Hardware Availability:** Feb-2024

**Software Availability:** Dec-2023

## General Notes (Continued)

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.

jemalloc, a general purpose malloc implementation built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5 sources available from jemalloc.net or <https://github.com/jemalloc/jemalloc/releases>

## Platform Notes

BIOS Settings:

Sub NUMA Clustering set to Enable SNC2(2-clusters)  
ADDDC Sparing set to Disabled  
DCU Streamer Prefetch set to Disabled  
Enhanced CPU performance set to Auto  
LLC Dead Line set to Disabled  
Processor C6 Report set to Enabled

Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on emr-x210-spec Fri Apr 19 17:31:16 2024

SUT (System Under Test) info as seen by some common utilities.

-----  
Table of contents  
-----

1. uname -a
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo
7. lscpu
8. numactl --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. sysctl
16. /sys/kernel/mm/transparent\_hugepage
17. /sys/kernel/mm/transparent\_hugepage/khugepaged
18. OS release
19. Disk information
20. /sys/devices/virtual/dmi/id
21. dmidecode
22. BIOS

-----  
1. uname -a  
Linux emr-x210-spec 5.14.21-150400.22-default #1 SMP PREEMPT\_DYNAMIC Wed May 11 06:57:18 UTC 2022 (49db222)  
x86\_64 x86\_64 x86\_64 GNU/Linux  
-----

2. w

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210 M7 (Intel Xeon Gold 5512U, 2.10GHz)

SPECrate®2017\_fp\_base = 332

SPECrate®2017\_fp\_peak = 342

**CPU2017 License:** 9019  
**Test Sponsor:** Cisco Systems  
**Tested by:** Cisco Systems

**Test Date:** Apr-2024  
**Hardware Availability:** Feb-2024  
**Software Availability:** Dec-2023

### Platform Notes (Continued)

```
17:31:16 up 5:59, 1 user, load average: 40.14, 52.13, 54.40
USER      TTY      FROM          LOGIN@      IDLE        JCPU        PCPU        WHAT
root      tty1     -             11:32      5:57m      1.05s      0.16s      -bash
```

3. Username  
From environment variable \$USER: root

4. ulimit -a  
core file size (blocks, -c) unlimited  
data seg size (kbytes, -d) unlimited  
scheduling priority (-e) 0  
file size (blocks, -f) unlimited  
pending signals (-i) 2062556  
max locked memory (kbytes, -l) 64  
max memory size (kbytes, -m) unlimited  
open files (-n) 1024  
pipe size (512 bytes, -p) 8  
POSIX message queues (bytes, -q) 819200  
real-time priority (-r) 0  
stack size (kbytes, -s) unlimited  
cpu time (seconds, -t) unlimited  
max user processes (-u) 2062556  
virtual memory (kbytes, -v) unlimited  
file locks (-x) unlimited

5. sysinfo process ancestry  
/usr/lib/systemd/systemd --switched-root --system --deserialize 30  
login -- root  
-bash  
sh runrate.ic2024.sh  
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=56 -c  
ic2024.0.2-lin-sapphirerapids-rate-20231213.cfg --reportable --iterations 3 --define smt-on --define  
cores=28 --define physicalfirst --define invoke\_with\_interleave --define drop\_caches --tune all -o all  
fprate  
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=56 --configfile  
ic2024.0.2-lin-sapphirerapids-rate-20231213.cfg --reportable --iterations 3 --define smt-on --define  
cores=28 --define physicalfirst --define invoke\_with\_interleave --define drop\_caches --tune all  
--output\_format all --nopower --runmode rate --tune base:peak --size refrate fprate --nopreenv  
--note-preenv --logfile \$SPEC/tmp/CPU2017.033/templogs/preenv.fprate.033.0.log --lognum 033.0  
--from\_runcpu 2  
specperl \$SPEC/bin/sysinfo  
\$SPEC = /home/cpu2017

6. /proc/cpuinfo  
model name : INTEL(R) XEON(R) GOLD 5512U  
vendor\_id : GenuineIntel  
cpu family : 6  
model : 207  
stepping : 2  
microcode : 0x21000200  
bugs : spectre\_v1 spectre\_v2 spec\_store\_bypass swapgs  
cpu cores : 28  
siblings : 56  
1 physical ids (chips)  
56 processors (hardware threads)  
physical id 0: core ids 0-27

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210 M7 (Intel Xeon Gold 5512U, 2.10GHz)

SPECrate®2017\_fp\_base = 332

SPECrate®2017\_fp\_peak = 342

**CPU2017 License:** 9019  
**Test Sponsor:** Cisco Systems  
**Tested by:** Cisco Systems

**Test Date:** Apr-2024  
**Hardware Availability:** Feb-2024  
**Software Availability:** Dec-2023

### Platform Notes (Continued)

physical id 0: apicids 0-55

Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

#### 7. lscpu

From lscpu from util-linux 2.37.2:

```

Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Address sizes:          46 bits physical, 57 bits virtual
Byte Order:             Little Endian
CPU(s):                 56
On-line CPU(s) list:   0-55
Vendor ID:              GenuineIntel
Model name:             INTEL(R) XEON(R) GOLD 5512U
CPU family:             6
Model:                  207
Thread(s) per core:    2
Core(s) per socket:    28
Socket(s):              1
Stepping:               2
CPU max MHz:           3700.0000
CPU min MHz:           800.0000
BogoMIPS:               4200.00
Flags:                  fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
                        clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp
                        lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology
                        nonstop_tsc cpuid aperfmperf tsc_known_freq pni pclmulqdq dtes64 monitor
                        ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid dca sse4_1
                        sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand
                        lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cat_l2 cdp_l3
                        invpcid_single cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow
                        vmni flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 hle avx2 smep
                        bmi2 erms invpcid rtm cqm rdt_a avx512f avx512dq rdseed adx smap
                        avx512ifma clflushopt clwb intel_pt avx512cd sha_ni avx512bw avx512vl
                        xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
                        cqm_mbm_local avx_vnni avx512_bf16 wbnoinvd dtherm ida arat pln pts hwp
                        hwp_act_window hwp_epp hwp_pkg_req avx512vbmi umip pku ospke waitpkg
                        avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg tme
                        avx512_vpopcntdq la57 rdpid bus_lock_detect cldemote movdiri movdir64b
                        enqcmd fsrm md_clear serialize tsxldtrk pconfig arch_lbr avx512_fp16
                        amx_tile flush_l1d arch_capabilities

Virtualization:        VT-x
L1d cache:             1.3 MiB (28 instances)
L1i cache:             896 KiB (28 instances)
L2 cache:              56 MiB (28 instances)
L3 cache:              52.5 MiB (1 instance)
NUMA node(s):         2
NUMA node0 CPU(s):    0-13,28-41
NUMA node1 CPU(s):    14-27,42-55
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf:    Not affected
Vulnerability Mds:     Not affected
Vulnerability Meltdown: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
Vulnerability Srbds:   Not affected
Vulnerability Tsx async abort: Not affected

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210 M7 (Intel Xeon Gold 5512U, 2.10GHz)

SPECrate®2017\_fp\_base = 332

SPECrate®2017\_fp\_peak = 342

**CPU2017 License:** 9019  
**Test Sponsor:** Cisco Systems  
**Tested by:** Cisco Systems

**Test Date:** Apr-2024  
**Hardware Availability:** Feb-2024  
**Software Availability:** Dec-2023

### Platform Notes (Continued)

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	48K	1.3M	12	Data	1	64	1	64
L1i	32K	896K	8	Instruction	1	64	1	64
L2	2M	56M	16	Unified	2	2048	1	64
L3	52.5M	52.5M	15	Unified	3	57344	1	64

8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.

```

available: 2 nodes (0-1)
node 0 cpus: 0-13,28-41
node 0 size: 257676 MB
node 0 free: 241273 MB
node 1 cpus: 14-27,42-55
node 1 size: 257986 MB
node 1 free: 246265 MB
node distances:
node  0  1
  0: 10 12
  1: 12 10

```

9. /proc/meminfo

MemTotal: 528038912 kB

10. who -r

run-level 3 Apr 19 11:32

11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)

```

Default Target  Status
multi-user      running

```

12. Services, from systemctl list-unit-files

```

STATE          UNIT FILES
enabled        YaST2-Firstboot YaST2-Second-Stage auditd cron getty@ haveged irqbalance issue-generator
                kbdsettings klog lvm2-monitor nscd nvme-fc-boot-connections postfix purge-kernels rollback
                rsyslog smartd sshd wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
enabled-runtime systemd-remount-fs
disabled       autofs autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait
                chronyd console-getty cups cups-browsed debug-shell ebttables exchange-bmc-os-info
                firewallld gpm grub2-once haveged-switch-root ipmi ipmievd issue-add-ssh-keys kexec-load
                lunmask man-db-create multipathd nfs nfs-blkmap nvme-f-autoconnect rdisc rpcbind
                rpmconfigcheck rsyncd serial-getty@ smartd_generate_opts snmpd snmptrapd svnservice
                systemd-boot-check-no-failures systemd-network-generator systemd-sysext
                systemd-time-wait-sync systemd-timesyncd udisks2
indirect       wickedd

```

13. Linux kernel boot-time arguments, from /proc/cmdline

```

BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
root=UUID=72058f1f-355b-4421-909c-1facaea01bdc
splash=silent
mitigations=auto
quiet
security=

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210 M7 (Intel Xeon Gold 5512U, 2.10GHz)

SPECrate®2017\_fp\_base = 332

SPECrate®2017\_fp\_peak = 342

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Apr-2024

**Hardware Availability:** Feb-2024

**Software Availability:** Dec-2023

## Platform Notes (Continued)

```

-----
14. cpupower frequency-info
analyzing CPU 0:
  current policy: frequency should be within 800 MHz and 3.70 GHz.
                  The governor "performance" may decide which speed to use
                  within this range.
  boost state support:
    Supported: yes
    Active: yes

```

```

-----
15. sysctl
kernel.numa_balancing          1
kernel.randomize_va_space     2
vm.compaction_proactiveness   20
vm.dirty_background_bytes      0
vm.dirty_background_ratio     10
vm.dirty_bytes                 0
vm.dirty_expire_centisecs     3000
vm.dirty_ratio                 20
vm.dirty_writeback_centisecs  500
vm.dirtytime_expire_seconds   43200
vm.extfrag_threshold          500
vm.min_unmapped_ratio         1
vm.nr_hugepages                0
vm.nr_hugepages_mempolicy     0
vm.nr_overcommit_hugepages    0
vm.swappiness                  1
vm.watermark_boost_factor     15000
vm.watermark_scale_factor     10
vm.zone_reclaim_mode          0

```

```

-----
16. /sys/kernel/mm/transparent_hugepage
defrag          always defer+madvice [madvice] never
enabled        [always] madvice never
hpage_pmd_size 2097152
shmem_enabled  always within_size advise [never] deny force

```

```

-----
17. /sys/kernel/mm/transparent_hugepage/khugepaged
alloc_sleep_millisecs  60000
defrag                 1
max_ptes_none          511
max_ptes_shared        256
max_ptes_swap          64
pages_to_scan          4096
scan_sleep_millisecs   10000

```

```

-----
18. OS release
From /etc/*-release /etc/*-version
os-release SUSE Linux Enterprise Server 15 SP4

```

```

-----
19. Disk information
SPEC is set to: /home/cpu2017
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdb2       xfs   893G  45G  849G  5% /

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210 M7 (Intel Xeon Gold 5512U, 2.10GHz)

SPECrate®2017\_fp\_base = 332

SPECrate®2017\_fp\_peak = 342

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Apr-2024

**Hardware Availability:** Feb-2024

**Software Availability:** Dec-2023

### Platform Notes (Continued)

```
-----
20. /sys/devices/virtual/dmi/id
Vendor:      Cisco Systems Inc
Product:     UCSX-210C-M7
Serial:      FCH270177DF
-----
```

```
-----
21. dmidecode
Additional information from dmidecode 3.2 follows.  WARNING: Use caution when you interpret this section.
The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately
determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the
"DMTF SMBIOS" standard.
Memory:
  7x 0xCE00 M321R8GA0BB0-CQKDG 64 GB 2 rank 4800
  1x 0xCE00 M321R8GA0BB0-CQKMG 64 GB 2 rank 4800
-----
```

```
-----
22. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor:      Cisco Systems, Inc.
BIOS Version:     X210M7.4.3.3a.0.0118241337
BIOS Date:        01/18/2024
BIOS Revision:    5.32
-----
```

### Compiler Version Notes

```
=====
C | 519.lbm_r(base, peak) 538.imagick_r(base, peak) 544.nab_r(base, peak)
-----
```

```
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
-----
```

```
=====
C++ | 508.namd_r(base, peak) 510.parest_r(base, peak)
-----
```

```
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
-----
```

```
=====
C++, C | 511.povray_r(base, peak) 526.blender_r(base, peak)
-----
```

```
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
-----
```

```
=====
C++, C, Fortran | 507.cactuBSSN_r(base, peak)
-----
```

```
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213
-----
```

(Continued on next page)





# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210 M7 (Intel Xeon Gold 5512U, 2.10GHz)

SPECrate®2017\_fp\_base = 332

SPECrate®2017\_fp\_peak = 342

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Apr-2024

**Hardware Availability:** Feb-2024

**Software Availability:** Dec-2023

## Compiler Version Notes (Continued)

Copyright (C) 1985-2023 Intel Corporation. All rights reserved.

-----  
Fortran | 503.bwaves\_r(base, peak) 549.fotonik3d\_r(base, peak) 554.roms\_r(base, peak)  
-----

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.

-----  
Fortran, C | 521.wrf\_r(base, peak) 527.cam4\_r(base, peak)  
-----

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.  
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2024.0.2 Build 20231213  
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.  
-----

## Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

Benchmarks using both Fortran and C:

ifx icx

Benchmarks using both C and C++:

icpx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifx

## Base Portability Flags

503.bwaves\_r: -DSPEC\_LP64  
507.cactuBSSN\_r: -DSPEC\_LP64  
508.namd\_r: -DSPEC\_LP64  
510.parest\_r: -DSPEC\_LP64  
511.povray\_r: -DSPEC\_LP64  
519.lbm\_r: -DSPEC\_LP64

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210 M7 (Intel Xeon Gold 5512U, 2.10GHz)

SPECrate®2017\_fp\_base = 332

SPECrate®2017\_fp\_peak = 342

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Apr-2024

**Hardware Availability:** Feb-2024

**Software Availability:** Dec-2023

## Base Portability Flags (Continued)

```

521.wrf_r: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
526.blender_r: -DSPEC_LP64 -DSPEC_LINUX -funsigned-char
527.cam4_r: -DSPEC_LP64 -DSPEC_CASE_FLAG
538.imagick_r: -DSPEC_LP64
544.nab_r: -DSPEC_LP64
549.fotonik3d_r: -DSPEC_LP64
554.roms_r: -DSPEC_LP64

```

## Base Optimization Flags

C benchmarks:

```

-w -std=c11 -m64 -Wl,-z,muldefs -xsaphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-Wno-implicit-int -mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

```

C++ benchmarks:

```

-w -std=c++14 -m64 -Wl,-z,muldefs -xsaphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

```

Fortran benchmarks:

```

-w -m64 -Wl,-z,muldefs -xsaphirerapids -Ofast -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

```

Benchmarks using both Fortran and C:

```

-w -m64 -std=c11 -Wl,-z,muldefs -xsaphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-Wno-implicit-int -mprefer-vector-width=512 -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

```

Benchmarks using both C and C++:

```

-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xsaphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

```

Benchmarks using Fortran, C, and C++:

```

-w -m64 -std=c++14 -std=c11 -Wl,-z,muldefs -xsaphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210 M7 (Intel Xeon Gold 5512U, 2.10GHz)

SPECrate®2017\_fp\_base = 332

SPECrate®2017\_fp\_peak = 342

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Apr-2024

**Hardware Availability:** Feb-2024

**Software Availability:** Dec-2023

## Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):

```
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

## Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

Benchmarks using both Fortran and C:

ifx icx

Benchmarks using both C and C++:

icpx icx

Benchmarks using Fortran, C, and C++:

icpx icx ifx

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

519.lbm\_r: basepeak = yes

538.imagick\_r: basepeak = yes

544.nab\_r: basepeak = yes

C++ benchmarks:

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210 M7 (Intel Xeon Gold 5512U, 2.10GHz)

SPECrate®2017\_fp\_base = 332

SPECrate®2017\_fp\_peak = 342

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Apr-2024

**Hardware Availability:** Feb-2024

**Software Availability:** Dec-2023

## Peak Optimization Flags (Continued)

508.namd\_r: basepeak = yes

```
510.parest_r: -w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids
-Ofast -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -mprefer-vector-width=512
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

Fortran benchmarks:

503.bwaves\_r: basepeak = yes

549.fotonik3d\_r: basepeak = yes

```
554.roms_r: -w -m64 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using both Fortran and C:

```
-w -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-Wno-implicit-int -mprefer-vector-width=512 -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc -L/usr/local/jemalloc64-5.0.1/lib
```

Benchmarks using both C and C++:

```
511.povray_r: -w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs
-fprofile-generate(pass 1)
-fprofile-use=default.profddata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4 -Wno-implicit-int
-mprefer-vector-width=512 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```

526.blender\_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

```
-w -m64 -std=c++14 -std=c11 -Wl,-z,muldefs -xsapphirerapids -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -Wno-implicit-int -mprefer-vector-width=512
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
```



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210 M7 (Intel Xeon Gold 5512U, 2.10GHz)

SPECrate®2017\_fp\_base = 332

SPECrate®2017\_fp\_peak = 342

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Apr-2024

**Hardware Availability:** Feb-2024

**Software Availability:** Dec-2023

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-V1.0-EMR-revD.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/Intel-ic2024-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-V1.0-EMR-revD.xml>

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

Tested with SPEC CPU®2017 v1.1.9 on 2024-04-19 20:31:15-0400.

Report generated on 2024-05-07 22:24:08 by CPU2017 PDF formatter v6716.

Originally published on 2024-05-07.